

REMARKS

Claims 1-20 are pending in the application. Claims 17-20 stand withdrawn from consideration. Claims 1-9 and 11-16 stand rejected by the Examiner. Claim 10 stands objected to as being dependent upon a rejected base claim, but the Examiner has stated it would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The drawings stand accepted. The prior art made of record and not relied upon is considered by the Examiner to be pertinent to Applicants' disclosure. The Examiner's rejections are addressed below in substantially the same order as in the Office Action.

REJECTIONS UNDER 35 USC §102

Claims 1-3, 7-9 and 12 stand rejected under 35 U.S.C. §102(b) as being anticipated by Allyn (US 4,722,363, hereinafter "Allyn"). The Examiner alleges that Allyn discloses a method of introducing a drag reducer to a hydrocarbon fluid stream flowing through a pipeline [drawing reference] 11, with the method comprising admixing two components – one from [drawing reference] 16, 20, and the other from [drawing reference] 24, 30 -- wherein the drag reducer components are admixed at the site of the fluid stream at desired rates. He notes that the drag reducer in Allyn is a viscous-oil based additive and as such involves the combination of a chemical and an oil-based solvent forming a smaller number of components, i.e., an additive-solvent mixture. In regard to claim 7, the Examiner notes that in Allyn the incipient drag reducer comprises the withdrawn pipeline fluid and the viscous oil-based additive, thus forming an essentially two-component mixture that has a smaller number of components than the three components originally involved, i.e., viscous oil, the additive, and the withdrawn fluid from the pipeline.

Applicants continue to respectfully traverse this rejection, and have hereby requested further amendments for the purpose of additional clarification of the nature and scope of their invention. These new amendments were not requested earlier

because facets of the Examiner's interpretation of Allyn were not fully understood by Applicants until reading the new office action. Applicants believe that these amendments will appropriately further prosecution of the application without including new matter or requiring consideration of additional art, or even reconsideration of already-considered art. They therefore assert that entrance of these amendments by the Examiner at this time would be appropriate. Accordingly, Applicants respectfully request that these amendments be entered.

While Applicants continue to assert, as in their previous Response, that the Allyn invention does not disclose admixing two components of a drag reducer to form an incipient drag reducer (i.e., one that does not have the capability to reduce drag until acted on by some condition, or conditions, in addition to combination with a fluid stream), Applicants further wish to point out that, with regard to the newly requested amendments, Applicants' claim 1 now clearly specifies that the components being admixed to form the incipient drag reducer are non-shear-sensitive. Applicants stress that their incipient drag reducer is just that – a combination of components that, in and of themselves, at the point at which they first form the incipient drag reducer, do not, and cannot, reduce drag. It is this use of the word "incipient" that is crucial. The Examiner appears to be misconstruing the term to refer to simply any material that does not serve as a drag reducer until it is in a fluid stream, simply because it is impossible to reduce drag unless the drag reducer is in a drag-experiencing medium. In Allyn, such compounds, however, are impliedly shear-sensitive in and of themselves (e.g., they are noted to be viscous prior to introduction into the side pipeline), regardless of whether they are in a fluid stream. In contrast, Applicants are attempting to define materials that are not inherently shear-sensitive, but which can become, if conditions are right and in combination with one another, shear-sensitive at some desired point relative to their joint introduction into the stream. This capability is therefore initiated by one or more particular conditions, whether of time, temperature, pressure, contact with one another, and/or something else, to which the incipient drag reducer is exposed after its formation and, in particularly desirable instances, while it is in the stream.

The advantage of Applicants' invention is thus very different from the Allyn invention. The Allyn invention enables the skilled practitioner to get a drag reducer, presumably already having shear-sensitive properties and already, itself, "relatively viscous" (see column 4, lines 1-7 of Allyn), into a pipeline with minimal disruption of the pipeline flow and while ensuring that the drag reducer is introduced along the inner wall of the pipeline. It is therefore a mechanical approach to what it addresses as the mechanical problems of flow disruption and drag reducer placement.

In contrast, the Applicants' invention enables the skilled practitioner to get an incipient drag reducer, essentially lacking shear-sensitive properties, into a fluid stream where it will, in many embodiments, travel some distance (through wearable valves, meters, etc.), prior to becoming shear-sensitive, i.e., prior to imparting drag reduction to the fluid stream. It is therefore a chemical approach to the mechanical problem of excessive wear of metering, valves, and other types of equipment through which the fluid stream flows.

As to the other claims included in this rejection (claims 2, 3, 7-9 and 12), Applicants respectfully note that each of these is a dependent claim that is ultimately dependent upon Applicants' claim 1. Because of the strong patentability of claim 1 as argued herein, Applicants assert herein only that such dependent claims are clearly and at least derivatively patentable in view of claim 1, making further discussion as to independent patentability of those claims unnecessary at this time.

Support for the amendments to Applicants' claim 1 may be found in Applicants' specification at page 4, lines 12-20; page 6, lines 20-22; page 10, lines 4-9. It is believed that with these amendments, and in view of Applicants' arguments as presented above, this rejection has now been satisfactorily overcome. Accordingly, it is respectfully requested that this rejection be withdrawn.

REJECTIONS UNDER 35 USC §103

Claims 4-6 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Allyn, as applied to Claims 1-3, 7-9 and 12 hereinabove, and further in view of Inomata et al. (US 2002/0008049 A1, hereinafter "Inomata"). The Examiner urges that

Allyn discloses the claimed invention with the exception of explicitly disclosing the hydrocarbon stream to be the product of passage through a desalter and/or a dehydrator, while Inomata discloses, at paragraph [0002], that it is common practice in the art to provide pretreatments such as dehydration and desalting for the purpose of obtaining the separation of crude oil into desired component fractions.

The Applicants respectfully traverse this rejection on the basis that the Allyn invention is, for the reasons discussed in detail hereinabove, clearly very different from the Applicants' invention, and that combination of Inomata therewith, whether or not such is permissible, does essentially nothing to produce, in the view of those skilled in the art, the Applicants' invention. Applicants have, indeed, included claims drawn specifically to application of their invention to hydrocarbon streams that have been passed through dehydrators and/or desalters, since such streams are more likely to be treated with drag reducers in general. However, combining Inomata, as a secondary reference, with Allyn, as a primary reference, does not result in something that is anywhere near equivalent to Applicants' invention. Instead, Allyn and Inomata would have to be fairly said to, at most, teach that Inomata's stream fractions can be treated by separating off a portion of such streams to form a sidestream, injecting a fully-prepared and formed drag reducer therein, and then routing the sidestream back into the mainstream, to ensure that the injection of the drag reducer does not unduly disrupt flow of the mainstream. Applicants therefore respectfully assert that Inomata does not overcome the deficiencies of the Allyn reference with respect to the rejected claims hereunder.

In view of the above, Applicants believe that this rejection has now been overcome, and its withdrawal is now respectfully requested.

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Claim 11 has been rejected under 35 USC §103(a) as being unpatentable over Allyn as applied to Claims 1-3, 7-9 and 12 above, and further in view of Babenko (US 2002/0002994 A1, hereinafter "Babenko"). The Examiner asserts that Babenko discloses that it is known in the art to vary the injection rate of the drag reducer (paragraph [0042]) based upon the property of the fluid stream in order to obtain

effective drag reduction. From this the Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided in Allyn [the concept of] varying the injection rate of the drag reducer, based on a property of the fluid stream, for the purpose of obtaining effective drag reduction, as evident from Babenko.

Applicants respectfully traverse this rejection, again on the basis that the secondary reference (Babenko) does not supply the deficiencies, or overcome the differences, already discussed hereinabove with respect to the Allyn invention. Combining Babenko, as a secondary reference, with Allyn, as a primary reference, thus still does not teach or in any way suggest choosing non-shear-sensitive components to produce a non-shear-sensitive incipient drag reducer, and then exposing that incipient drag reducer to some condition – whether of time, temperature, or other condition – under which it transforms to a shear-sensitive drag reducer. Again, Applicants stress that such “conditions” mean conditions in addition to the introduction of the drag reducer component admixture into the fluid stream. In general, Applicants’ components are admixed just prior to their introduction into the fluid stream. It should thus be clear to the Examiner that Applicants are not trying to claim transportation of a fully-composed drag reducing agent, that is already shear-sensitive, to the location of the fluid stream, followed by injection, at any given rate, of the agent into the stream. Allyn, in contrast, contemplates just such a situation, except that agent in Allyn is injected into a side stream first. Adding Babenko, so that that injection is done at a slower or faster rate, does not change the overall teaching of the two references as combined by the Examiner.

As with Inomata, Applicants respectfully assert that the inherent and already-supported patentability of their independent claim 1, upon which claim 11 ultimately depends, provides at least derivative patentability for claim 11, and that further discussion of the potentially independent patentability of these claims, upon reformation, is inappropriate or unnecessary at this time. Accordingly, Applicants believe that this rejection has now been overcome and its withdrawal is respectfully requested.

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Claims 13-14 have been rejected under 35 USC §103(a) as being unpatentable over Allyn as applied to Claims 1-3, 7-9 and 12 above, and further in view of Thompson et al. (US 6,849,581, hereinafter “Thompson”). The Examiner asserts that Thompson discloses that it is known in the art to provide a drag reducer made from two components – a carboxylic acid and one or more metal salts of carboxylic acids (which here is taken to include both sets of drag reducer compositions recited in Claims 13 and 14) for the purpose of obtaining desired drag reduction. From this the Examiner concludes that it would have been obvious for one of ordinary skill in the art at the time the invention was made to have provided in Allyn a drag reducer comprising these components for the purpose of obtaining desired drag reduction, as recognized by Thompson.

As with Inomata, the Thompson reference cannot supply the deficiencies, or overcome the differences, encountered in Allyn. Applicants’ Claims 13 and 14 ultimately depend upon Claim 1, and as such represent an at least derivatively patentable invention. Thus, if the combinations represented by Claims 13 and 14 do not form an incipient drag reducer, which is then formed into a [true] drag reducer by conditions encountered upon or after injection into the fluid stream, such is not within the scope of Claims 13 and 14. Applicants have not been able to locate any mention in the very voluminous disclosure of Thompson which provides teaching of this sequence, and if Applicants have overlooked such, it is respectfully requested that the Examiner point out such teaching with greater specificity.

In view of the above remarks, and the Applicants’ discussion of the deficiencies of the Allyn reference in general throughout this Response, Applicants believe that the requirements of 103(a) have not been met and that Applicants’ invention cannot therefore fairly be said to be obvious in view of the combination of Allyn and Thompson as recited by the Examiner. Accordingly, it is believed that this reference has now been overcome, and its withdrawal is respectfully requested.

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Claims 15 and 16 have been rejected under 35 USC §103(a) as being obvious over Allyn. The Examiner asserts that to provide admixing of the components at either sub-ambient or supra-ambient temperatures is considered to be a design expedient over those features disclosed in Allyn in that it neither provides any new and/or unexpected result, nor solves any stated problem.

Applicants respectfully traverse this rejection on the ground that the admixing of components at specific temperatures may, indeed, in Applicants' invention serve an important purpose – to maintain the "incipient" nature, including the non-shear-sensitive aspect, of the incipient drag reducer, such that the conditions that the incipient drag reducer encounters thereafter and/or while in the fluid stream are such that the incipient drag reducer is transformed into a "true" drag reducer. Thus, the results are, indeed, "new," in the sense that the Applicants' invention of controlling the nature of the components to enable introduction in a non-shear-sensitive (and typically less viscous) form is new. This is the essence of Applicants' teachings, and as such, it represents a very significant improvement in the approach to drag reducer-created problems, problems that are different from those addressed by Allyn, as discussed in various places hereinabove. Applicants have, with their invention, made a real contribution to the art.

In view of the above, it is believed that this rejection has now been overcome. Accordingly, Applicants now respectfully request withdrawal thereof.

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Applicants note the Examiner's statement that claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Because Applicants believe that the rejected base claim is now allowable, Applicants respectfully decline to rewrite this claim at this time.

CONCLUSION

For all the foregoing reasons, Applicants submit that the application is now in condition for allowance, and such is respectfully requested. No fee is believed due for this paper. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. 02-0429 (194-34483-US).

Respectfully submitted,

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